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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,617	08/29/2005	Ya Xu	040894-7140	7133
9629 7590 10/08/2008 MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004				
EXAMINER				
GRAY, JILL M				
ART UNIT		PAPER NUMBER		
1794				
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10/08/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/516,617

## Applicant(s)

XU

## Examiner

Jill Gray

## Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,10,11,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 6-9,12 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 12/30/04;8/29/05;5/1/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

The prior art document cited in the specification has been noted by the examiner.

***Claim Objections***

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 3-14 been renumbered 4-15.

4. Claims 6-9, 12, and 15 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2, 4-5, 10-11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al., 7,253,219 B2 (Xu) in view of EP08013068 (EP'068) and Saito et al., "A New Fabrication Process of TiNi Shape Memory Wire" (Saito).

Xu discloses a shape memory alloy wire substantially of the type contemplated by applicants, wherein said wire is produced by cold drawing a shape memory alloy and comprises a shape memory alloy that has a reverse transformation starting temperature of 130°C or higher and has a shrinking strain of 2% or more, wherein the shape memory alloy comprises a TiNi alloy in an Ni content of 49 to 52% by atom. Figures 7-8 show

reverse transformation termination temperatures of at least 250°C. See entire document. and for example, abstract and column 2, lines 63-65. In addition, Xu teaches a cold drawing rate of at least 20% per claim 2, and the formation of composite materials comprising glass fibers or carbon fibers in thermosetting epoxy resins, as required by present claims 4-5, 11 and 14. See column 2, lines 29-31 and column 5, lines 47-65. In addition, Xu teaches a process for producing said composite material, said process being essentially as claimed. Note Example 7. Xu does not disclose the diameter of his shape memory alloy wire. EP'068 and Saito each teach that fine diameter shape memory TiNi alloy wires are known in the art, wherein Saito additionally teaches that his wire is cold drawn. While Xu is silent as to the diameter of his wire, this limitation is drawn to the size of the wire. It is the examiner's position that changes in size are not a matter of invention. *In re Dailey*, 149 USPQ 47 (CCPA 1976). Alternatively, EP'086 and Saito each teach that TiNi alloy wires of the instant claimed diameter were known in the art at the time the invention was made. Hence, to use wires of this diameter in the formation of composite products is not construed to be inventive, absent factual evidence to the contrary. Regarding claim 10, this claim is a product-by-process claim, wherein patentability relies solely on the product. Accordingly, the process limitations add no patentable weight.

Therefore the combined teaching of the prior art would have rendered obvious the invention as claimed in present claims 1-2, 4-5, 10-11, 13-14.

9. Claims 1-2, 4-5, 10-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP2002-356757 (Kyo), (machine

translation) in view of EP08013068 (EP'068) and Saito et al., "A New Fabrication Process of TiNi Shape Memory Wire" (Saito).

Kyo discloses a shape memory alloy wire substantially of the type contemplated by applicants, wherein said wire is produced by cold drawing a shape memory alloy and comprises a shape memory alloy that has a reverse transformation starting temperature of 130°C or higher and has a shrinking strain of 2% or more, wherein the shape memory alloy comprises a TiNi alloy in an Ni content of 49 to 52% by atom and a cold drawing rate of at least 10% or more, as required by present claims 1-2. Figures 7-8 show reverse transformation termination temperatures of at least 250°C. See entire document and for example claims 1-6. Kyo discloses the formation of composite materials comprising glass fibers or carbon fibers in thermosetting epoxy resins, as required by present claims 4-5, 11 and 14. See page 6 of translation. In addition, Kyo teaches a process for producing said composite material, said process being essentially as claimed in present claim 13. Kyo does not disclose the diameter of his shape memory alloy wire. EP'068 and Saito each teach that fine diameter shape memory TiNi alloy wires are known in the art, wherein Saito additionally teaches that his wire is cold drawn. While Kyo is silent as to the diameter of his wire, this limitation is drawn to the size of the wire. It is the examiner's position that changes in size are not a matter of invention. *In re Dailey*, 149 USPQ 47 (CCPA 1976). Alternatively, EP'086 and Saito each teach that TiNi alloy wires of the instant claimed diameter were known in the art at the time the invention was made. Hence, to use wires of this diameter in the formation of composite products is not construed to be inventive, absent factual evidence to the

contrary. Regarding claim 10, this claim is a product-by-process claim, wherein patentability relies solely on the product. Accordingly, the process limitations add no patentable weight.

Therefore the combined teaching of the prior art would have rendered obvious the invention as claimed in present claims 1-2, 4-5, 10-11, 13-14.

10. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

11. Claims 1-2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al., 5,641,364 (Goldberg) taken alone, or in view of EP08013068 (EP'068) and Saito et al., "A New Fabrication Process of TiNi Shape Memory Wire" (Saito).

Goldberg discloses shape memory alloy wires substantially of the type contemplated by applicants, wherein said wire is produced by cold drawing a shape memory alloy and comprises a shape memory alloy that has a reverse transformation starting temperature of 130°C or higher and a reverse termination temperature of at least 250°C and has a shrinking strain of 2%, as required by claim 1. Also, Goldberg teaches a cold drawing rate of at least 20%, per claim 2. See entire document, for example abstract, column 8, lines 7-9 and Tables. Goldberg does not teach the instant claimed wire diameter. It is the examiner's position that changes in size are not a matter of invention. *In re Dailey*, 149 USPQ 47 (CCPA 1976). Alternatively, EP'086 and Saito each teach that TiNi alloy wires of the instant claimed diameter were known in

the art at the time the invention was made. Hence, to modify the teachings of Goldberg by changing the wire diameter during routine experimentation is not construed to be inventive, absent factual evidence of unexpected or superior properties directly related to the instant wire diameter. Regarding claim 10, this claim is a product-by-process claim, wherein patentability relies solely on the product. Accordingly, the process limitations add no patentable weight.

Therefore the combined teaching of the prior art would have rendered obvious the invention as claimed in present claims 1-2 and 10.

12. Claims 4-5, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al., 5,641,364 (Goldberg) taken alone, or in view of EP08013068 (EP'068) and Saito et al., "A New Fabrication Process of TiNi Shape Memory Wire" (Saito), further in view of Xu et al., 7,253,219B2 (Xu) as applied above to claims 1-2, 4-5, 10-11, and 13-14 and EP09176330 (EP'330).

Goldberg, EP'068 and Saito are as set forth above, but do not teach the incorporation of the shape memory alloy wire into a composite. Xu is as set forth above and teaches the formation of composite materials comprising shape memory alloy wires and thermosetting resins, and EP'330 teaches the formation of composite materials comprising matrix materials having shape memory alloy wires incorporated therein. Accordingly, all of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.



Therefore, the combined teaching of the prior art references would have rendered obvious the invention as claimed in present claims 4-5, 11 and 13-14.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton I. Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 1794

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